

ABSTRACT OF THE DISCLOSURE

[0193] A process for forming a microcrystalline silicon series thin film by arranging a substrate in a vacuum chamber so as to oppose an electrode provided in said vacuum chamber and while transporting said substrate in a longitudinal direction, causing glow discharge between said electrode and said substrate to deposit said microcrystalline silicon series thin film on said substrate, wherein a plurality of bar-like shaped electrodes as said electrode are arranged such that they are perpendicular to a normal line of said substrate and their intervals to said substrate are all or partially differed, and said glow discharge is caused using a high frequency power with an oscillation frequency in a range of from 50 MHz to 550 MHz, whereby depositing said microcrystalline series thin film on substrate. An apparatus suitable for practicing said process.